

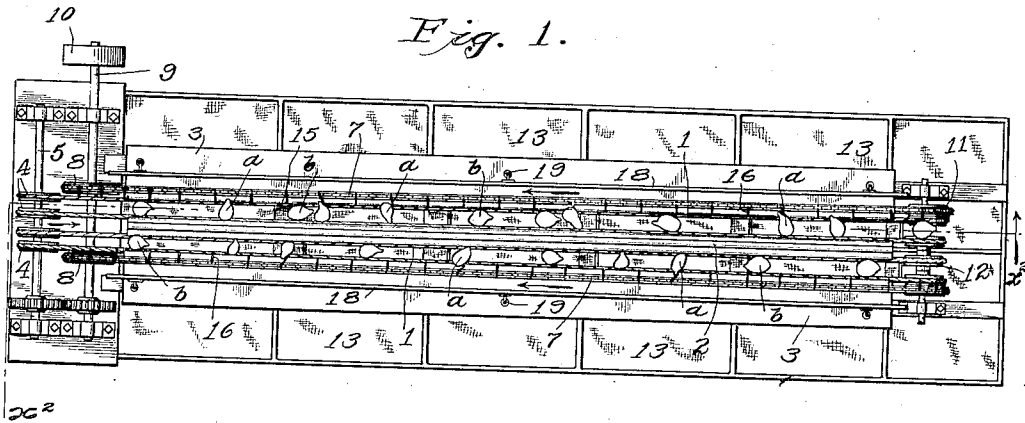
R. B. FARRAR & B. C. LEIGHTON.

LEMON GRADER.

APPLICATION FILED JUNE 24, 1911.

1,062,775.

Patented May 27, 1913.



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Fig. 2.

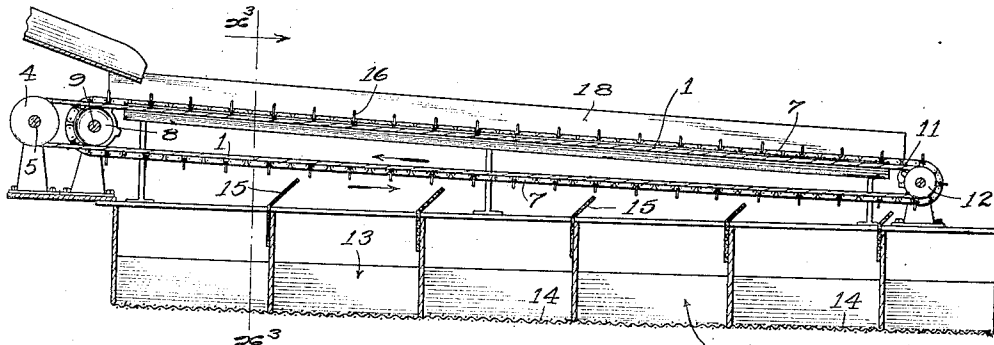
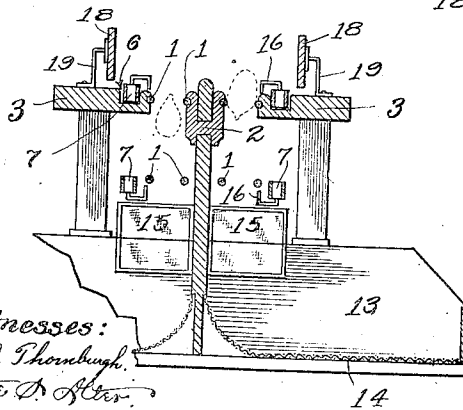


Fig. 3.



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Fig. 5.

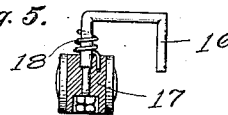
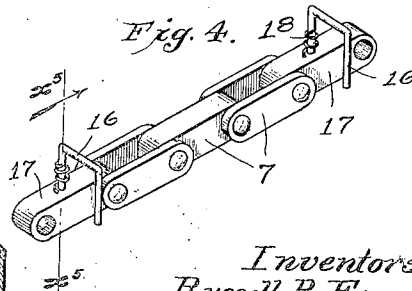


Fig. 4.



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UNITED STATES PATENT OFFICE.

RUSSELL B. FARRAR, OF GLENDALE, AND BYRON C. LEIGHTON, OF LOS ANGELES,
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LEMON-GRADER.

1,062,775.

Specification of Letters Patent.

Patented May 27, 1913.

Application filed June 24, 1911. Serial No. 635,179.

To all whom it may concern:

Be it known that we, RUSSELL B. FARRAR and BYRON C. LEIGHTON, citizens of the United States, residing, respectively, at Glendale and Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Lemon-Grader, of which the following is a specification.

This invention relates to a machine for grading lemons or other fruit or things having an ovoid shape and which are to be graded according to the length of their shorter axis.

The main object of the present invention is to provide means for turning the lemons or objects to be graded so that the shorter axis will be presented to the calipering device which determines the grade.

Referring to the drawings: Figure 1 is a plan view of the invention. Fig. 2 is a vertical section on line x^2-x^2 Fig. 1. Fig. 3 is a vertical section on line x^3-x^3 Fig. 2. Fig. 4 is a perspective view of a portion of the chain. Fig. 5 is a section on line x^5-x^5 Fig. 4.

The grader comprises a grading way or chute consisting of two inclined supporting members arranged with a gradually narrowing space between them, and adapted to support the fruit as it travels along until the fruit arrives at the point where the space is sufficiently wide to permit the fruit to fall therethrough. In the present embodiment the two members comprise ropes 1, which are supported in slots formed in a center strip 2 and an outer board 3, the strip 2 and board 3 affording an unyielding support for the ropes, preventing sagging and maintaining a perfect calipering distance between the ropes. We prefer to employ two grading ways in the same machine and we arrange the same on opposite sides of the strip 2. The ropes 1 pass over pulleys 4 on a shaft 5. Each board 3 is longitudinally recessed to form a groove 6 in which travels a chain 7, the chain 7 passing over sprockets 8 on a shaft 9, operated by a pulley 10. At the foot of the machine the chains pass over idle sprockets 11 and the ropes pass over idle pulleys 12. The chains run in a direction opposite to the ropes. The ropes 1 gradually diverge toward the foot of the machine, thereby forming a tapering grading space or slot through which the lemons drop when they arrive at a point

where the space is sufficient to permit of the small diameter of the fruit passing there-through and thus lemons of different diameters will be allowed to drop through at different points along the grading way into bins 13 which are arranged underneath and provided with canvas bottoms 14 to soften the fall of the lemons and prevent bruising, while canvas frames 15 are employed as baffle-plates against which the lemons strike when falling through if they are close to the edge of the lower end of a bin and are thereby prevented from becoming bruised. The lemons lie at various angles on the ropes 1 and in order to turn the lemons to bring their small axes transversely to the grading ropes 1, we provide pins 16, which as clearly shown in Figs. 4 and 5 are U-shaped, one leg of each pin being revoluble in a center link 17 of the chain, a coil spring 18 being provided for yieldingly holding the pin 16 transversely to the chain. As the lemons roll down the grading ropes 1, the moving pins 16 which are carried along by the chain, strike the ends of lemons which may be disposed with their long axis transverse to the rope and turn such lemons so that the shorter axes thereof are transverse to the grading slot. Thus as shown in Fig. 1, those lemons designated *a*, lie with their long axes transverse to the slot and their ends will be encountered by the pins 16 which will turn the lemons so that they assume the positions shown by the lemon *b*, which is a proper grading position, and will then travel down with the ropes until they reach a space sufficiently wide to receive their short axes, whereupon they will drop into the bins underneath. Side strips 18 are supported by brackets 19 and keep the lemons on top of the grader.

The important feature of the present invention is the turning of the lemons so that their short axes will be transverse to the grading slot. With any of the graders heretofore used, so far as we are aware, the capacity of the machines has been so small as to render the grading of lemons much more expensive than the grading of oranges or fruit substantially spherical, for the reason that such a large number of the lemons would stand with their long axes transverse to the slot and would be carried through the machine in such a position without passing through the slot, and such ungraded lemons

would have to be returned and reconducted through the machine until they are graded, whereas with oranges or other fruit of spherical shape, the angular position with respect to the grading slot is of no consequence. Therefore, the present invention which provides means for turning all of the lemons in the machine into a grading position, effects great economy in that all of the lemons are graded upon their first passage through the machine.

What we claim is:

1. A grader for oblong fruit, comprising a grading element, a series of pins, and means for producing relative movement between the pins and fruit for turning the fruit, to bring their short axes into coöperative relation with the grading element.
2. An oblong fruit grader comprising a grading way, upon which the fruit is supported and travel and pins along said way in a direction opposite to the movement of the lemons for engaging the ends of said fruit and turning the fruit to bring their short axes into coöperative relation with the grading way.
3. An oblong fruit grader comprising a grading way, upon which the fruit is supported and travel, a chain movable with respect to the fruit along said way, a series of pins carried by said chain, said pins being of a length to contact with the ends of fruit which have turned with their long

diameter transverse to the grading way and thereby turn such fruit to bring their short diameter transverse to the grading way.

4. An oblong fruit grader comprising a grading way, along which the fruit travels, a chain extending along the grading way, a series of U-shaped pins, one leg of each pin being revolubly mounted in said chain and a spring for yieldingly holding each pin in a position transverse to the chain.

5. An oblong fruit grader comprising a grading way, along which the fruit travels, and a series of pins yieldingly supported, traveling along said grading way for turning fruit whose long axes are transverse to the grading way, into a position with their short axes transverse to the grading way.

6. In a fruit grading machine, the combination with the fruit conveying and sizing devices, of obstructing fingers adjacent to said devices extending into the path of the fruit to turn the same, said obstructing fingers being movably mounted to move them into or out of the path of the fruit.

In testimony whereof, we have hereunto set our hands at Los Angeles, California, this 16 day of June, 1911.

RUSSELL B. FARRAR.
BYRON C. LEIGHTON.

In presence of—

G. T. HACKLEY,
GLADYS RUSSELL.